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EXAMINER

GUPTA, PARUL H

ART UNIT	PAPER NUMBER
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2627

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/08/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/509,887	Applicant(s) KIHARA ET AL.	
	Examiner Parul Gupta	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12-19 and 21-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-19, and 21-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Arguments filed on 11/15/06 have been considered with the following results.
Claims 1-10, 12-19, and 21-41 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 13-15, 18-19, 22, 30, 33, and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogan, US Patent 5,828,754 in view of Furuta et al., US Patent 6,876,607.

Regarding claim 1, Hogan teaches an encrypted data recording method, comprising: modulating input data for each of a predetermined unit (column 4, lines 52-56); selecting predetermined connection bits that are placed between two sequences of modulated data (given in figure 3 and explained in column 3, lines 48-60), each sequence corresponding to the predetermined unit ("protected" block), so that the absolute value of a DSV increases in only a predetermined region (column 6, lines 42-48); and recording the modulated data for each predetermined unit and the selected connection bits (using system given in figure one, explained in column 4, lines 52-67). The reference is directed to creating a large accumulated DSV, which serves the same

purpose as increasing the absolute value of a DSV. Hogan further teaches in column 7, lines 6-30 the method where the recording area includes a synchronous signal area ("synchronization bytes") and a data area ("data bytes"), and said predetermined region is the data area (column 7, lines 13-15).

Regarding claim 2, Hogan teaches the data recording method as set forth in claim 1, wherein the selecting is performed by selecting connection bits from a plurality of patterns ("sequence") of connection bits so that the absolute value of the DSV increases (column 3, lines 48-60).

Regarding claim 3, Hogan teaches the data recording method as set forth in claim 1, wherein the selecting is performed by selecting a predetermined code conversion table (element 200 of figure 2) from a plurality of different code conversion tables (elements 200 and 214 of figure 2) so that the absolute value of the DSV increases (column 5, lines 43-51) and selecting connection bits in accordance with the selected code conversion table (column 5, lines 34-41).

Regarding claim 4, Hogan teaches the data recording method as set forth in claim 1, wherein the predetermined region is an area for copy protection or security of a recording medium (column 6, lines 45-48).

Regarding claim 5, Hogan teaches the data recording method as set forth in claim 1, wherein when the absolute value of the DSV increases ("accumulating DSV"), data that is reproduced is prevented from being normally read (column 6, lines 33-41). In the given section, the "non-optimal choice" forces a "normal" read state.

Regarding claim 13, Hogan teaches an encrypted data recording apparatus, comprising: modulating means for modulating input data for each predetermined unit (element 102 of figure 1) and selecting predetermined connection bits placed between two sequences of modulated data (done by element 108 of figure 1 and symbol sequence given in figures 3A to 3D), each sequence corresponding to the predetermined unit; recording means for recording the modulated data for each predetermined unit and the predetermined connection bits (column 4, lines 58-59); and controlling means ("special encoder") for causing the modulating means to select connection bits so that the absolute value of the DSV increases in a predetermined region (column 3, lines 55-60). The "half-line of blocked data" of the third embodiment represents the given predetermined region (column 4, lines 8-15). Hogan further teaches in figure 4 the apparatus where the recording area includes a synchronous signal area ("synchronization bytes") and a data area ("data bytes"), and said predetermined region is the data area (column 7, lines 13-15).

Regarding claim 14, Hogan teaches the data recording apparatus as set forth in claim 13, wherein the controlling means is configured to select connection bits from a plurality of patterns ("sequence") of connection bits so that the absolute value of the DSV increases (column 3, lines 48-60).

Regarding claim 15, Hogan teaches the data recording apparatus as set forth in claim 13, wherein the modulating means has a plurality of different code conversion tables ("encoding tables" of figure 2), and wherein the controlling means is configured to select a code conversion table from the plurality of different code conversion tables so

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that the absolute value of the DSV increases (column 5, lines 24-51 shows how the different tables are used for controlling the DSV) and selecting connection bits in accordance with the selected code conversion table (column 5, lines 34-36).

Regarding claim 18, Hogan teaches a recording medium (element 112 of figure 1) on which a plurality of predetermined units of modulated data and connection bits are recorded (column 4, lines 58-59), the connection bits being placed between two sequences of modulated data, each sequence corresponding to the predetermined unit (column 7, lines 6-11), the connection bits being recorded in a predetermined region so that the absolute value of a DSV increases (column 7, lines 13-19 describes how the format is used for DSV control, which includes increasing the absolute value of the DSV). Hogan further teaches in column 7, lines 6-30 the medium where the recording area includes a synchronous signal area ("synchronization bytes") and a data area ("data bytes"), and said predetermined region is the data area (column 7, lines 13-15).

Regarding claim 19, Hogan teaches the recording medium (element 112 of figure 1) as set forth in claim 18, wherein the predetermined region is an area for copy protection or security (column 6, lines 45-48).

Regarding claim 22, Hogan teaches a data reproducing method, comprising the steps of: reproducing data from a recording medium on which a plurality of predetermined units of modulated data ("data bytes") and connection bits ("synchronization bytes") are recorded, the connection bits being placed between two sequences of modulated data, each sequence corresponding to the predetermined unit (column 7, lines 6-11), the connection bits being recorded in a predetermined region so

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that the absolute value of a DSV increases (column 7, lines 13-19 describes how the format is used for DSV control, which includes increasing the absolute value of the DSV) where the recording area includes a synchronous signal area ("synchronization bytes") and a data area ("data bytes"), and said predetermined region is the data area (column 7, lines 13-15); and detecting a reproduction state from the reproduced data (column 4, lines 18-23) describes that it is difficult to recover the channel bits, suggesting that the data is altered enough to detect a reproduction state based on the reproduced data).

Regarding claim 30, Hogan teaches a data reproducing apparatus, comprising: reproducing means for reproducing data from a recording medium on which a plurality of predetermined units of modulated data ("data bytes") and connection bits ("synchronization bytes") are recorded, the connection bits being placed between two sequences of modulated data, each sequence corresponding to the predetermined unit (column 7, lines 6-11), the connection bits being recorded in a predetermined region so that the absolute value of a DSV increases (column 7, lines 13-19 describes how the format is used for DSV control, which includes increasing the absolute value of the DSV) where the recording area includes a synchronous signal area ("synchronization bytes") and a data area ("data bytes"), and said predetermined region is the data area (column 7, lines 13-15); and controlling means for causing the reproducing means to reproduce the predetermined region (recording system is shown in figure 1 and described in column 4, lines 52-68) and detect a reproduction state of the reproduced data (column 4, lines 11-23 describes that it is difficult to recover the channel bits,

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suggesting that the data is altered enough to detect a reproduction state based on the reproduced data).

Regarding claim 33, Hogan teaches the data reproducing apparatus wherein the controlling means detects an error state of data in accordance with the reproduction state (done in element 124 of figure 1). The module in the reference is used for error detection as is explained in column 4, lines 63-66.

However, in claims 1, 13, 18, 22, and 30, Hogan does not but Furuta et al. teaches in column 5, lines 58-65 that the DSV control is recorded in a predetermined region of the disk. The resync pattern is determined according to the DSV, making it the DSV control. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of recording to the disk as taught by Furuta et al. into the system of Hogan. This would serve to minimize differences in DSV between the data ranges (column 5, lines 58-65 of Furuta et al.).

Regarding claims 40 and 41, Hogan also fails to suggest or disclose the predetermined region including an encryption key. Furuta et al. teaches in column 5, lines 58-65 the data reproducing apparatus wherein the predetermined region includes an encryption key. The resync signal used serves as an encryption key that is used to perform DSV control. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the concept of an encryption key as taught by Furuta et al. into the system of Hogan. This would serve to prevent unauthorized users from accessing the data.

3. Claims 7-10, and 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogan in view of Furuta et al. as applied to claim 1 above, and further in view of Ido et al., US Patent 5,852,520.

Hogan in view of Furuta et al. teaches all of the limitations of claim 1 (see rejection of claim 1 given above). Hogan also teaches controlling the DSV by selecting the connection bits so that the absolute value of the DSV decreases (given in figure 3 and explained in column 5, lines 1-10; column 6, lines 1-3; and column 7, lines 11-19) or increases in the predetermined region (column 6, lines 42-48 shows how to ensure a large DSV, which suggests that the DSV is increasing due to the channel bit selection of the standard encoders) based on whether a special encoder or standard encoder is used.

Hogan in view of Furuta et al. does not teach the limitations of an initial value for the DSV or an offset in the predetermined region as given in claims 7-9 or 16-17.

Regarding claims 7 and 8, Ido et al. teaches the data recording method, wherein the selecting is performed by designating an initial value for the DSV ("the DSV control signal being preset" in column 6, lines 15-32) with an offset in only the predetermined region (column 15, lines 52-61 shows how there is only a certain offset in a certain track, where the track is the predetermined region).

Regarding claim 9, Ido et al. teaches in column 15, lines 52-61, the data recording method, wherein the offset (+1 applied to the DSV initial phase signal) is applied every n predetermined units ("tracks"), where n is any natural number (in this case, n=1).

Regarding claim 10, Ido et al. teaches the data recording method wherein the offset is applied for each frame ("track" of column 15, lines 52-61) composed of a plurality of predetermined units of modulated data (definition of tracks).

Regarding claims 16 and 17, Ido et al. teaches in column 15, lines 52-61, the data recording method and apparatus set forth in the method, wherein the controlling means is configured to designate an initial value for the DSV ("DSV initial phase signal") with an offset (+1 per track) in only the predetermined region ("track"). As the apparatus is given in the section of the reference, the implication is that the method is also taught.

It would have been obvious to one of ordinary skill in the art to include the concept of the DSV with an initial value and an offset in the predetermined area as taught by Ido et al. into the system of Hogan in view of Furuta et al. The motivation would be that the initial value and offset would serve to control a DSV value at every code word to achieve a DC free data conversion (column 5, lines 46-50; Ido et al.).

4. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hogan in view of Furuta et al. in view of Ido et al. as applied to claims 7-9 above, and further in view of Kurashina et al., US Patent 6,661,763.

Hogan in view of Furuta et al. in view of Ido et al. teaches the limitations of claims 7-10. In addition, Hogan in view of Furuta et al. in view of Ido teaches an offset that is applied to the predetermined area where the channel bits are recorded.

Hogan in view of Furuta et al. in view of Ido et al. does not teach the limitations of claim 12.

Regarding claim 12, Kurashina et al. teaches in figure 2 the data recording method wherein when the data area includes a sub code recording area (102), the offset is applied for other than the sample code recording area. As the channel bits in

Kurashina et al. are recorded in other than the recording area, the offset must also be in other than the recording area. For more information, see lines 39-54 of column 3.

It would have been obvious to one of ordinary skill in the art to include the concept of recording the connection bits into other subareas than the recording area of the data area as taught by Kurashina et al. into the system of Hogan in view of Furuta et al. in view of Ido et al. The motivation would be that the recording medium given would serve to connect the data without disturbing the subcode, the data would be saved even if finalization of a disk were not complete, and the medium would allow the recording to be conducted on the disk so another storage device is not necessary. Further, the correspondence relationship of the disk with the related data can be always maintained (column 2, lines 31-37).

5. Claims 21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogan in view of Furuta et al. as applied to claim 18 above, and further in view of Kurashina et al.

Hogan in view of Furuta et al. teaches the limitations of claim 18 and the same goal of an increasing DSV (see the rejection applied to claim 18 above).

Hogan in view of Furuta et al. does not teach the limitations of claims 21 and 25.

Regarding claim 21, Kurashina et al. teaches in figure 2 the recording medium wherein the data area has a sub code recording area (102), and wherein the connection bits are recorded in other than the sub code recording area of the data area (they are recorded in the "synchronous pattern data area" of element 101). For more information, see column 3, lines 39-54.

It would have been obvious to one of ordinary skill in the art to include the concept of recording the connection bits into other subareas than the recording area of the data area as taught by Kurashina et al. into the system of Hogan in view of Furuta et al. The motivation would be that the recording medium given would serve to connect the data without disturbing the subcode. Thus, the data would be saved even if finalization of a disk were not complete. The medium would allow the recording to be conducted on the disk so another storage device is not necessary. Further, the correspondence relationship of the disk with the related data can be always maintained (column 2, lines 31-37).

Regarding claim 25, Hogan teaches the data reproducing method further comprising: detecting an error state of data in accordance with the reproduction state (column 5, lines 11-19).

6. Claims 23-24, 27, 31-32, 35 and 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogan in view of Furuta et al. as applied to claims 22 and 30 above, and further in view of Takagi et al., US Patent 4,879,704.

Hogan in view of Furuta et al. teaches the data reproducing method and apparatus according to the limitations of claims 22 and 30 (see the rejection given above).

Regarding claims 23 and 31, Hogan in view of Furuta et al. does not but Takagi et al. teaches the data reproducing apparatus which includes the method further comprising: determining whether or not the recording medium is an original recording medium in accordance with the reproduction state (column 3, lines 52-58).

Regarding claims 24 and 32, Hogan in view of Furuta et al. does not but Takagi et al. teaches the data reproducing apparatus which includes the method further comprising: determining whether or not data can be reproduced in accordance with the reproduction state (column 3, lines 52-58).

Regarding claims 27 and 35, Hogan in view of Furuta et al. does not but Takagi et al. teaches the data reproducing apparatus which includes the method wherein the predetermined region is an area for copy protection or security, and wherein the data reproducing method further comprises: causing reproducing means to access the predetermined region (column 5, lines 12-22).

Regarding claims 38-39, Furuta et al. teaches in column 5, lines 58-65 the data reproducing apparatus wherein the predetermined region includes an encryption key. The resync signal used serves as an encryption key that is used to perform DSV control.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the copy restriction apparatus and method as taught by Takagi et al. into the system of Hogan in view of Furuta et al. in view of Kurashina et al. The motivation would be that this would serve to minimize differences in DSV between the data ranges (column 5, lines 58-65 of Furuta et al.).

7. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hogan in view of Furuta et al. in view of Kurashina et al. as applied to claim 21 above, and further in view of Yeo, US Patent 6,621,781.

Hogan in view of Furuta et al. in view of Kurashina et al. teaches the medium according to the limitations of claim 21 (see the rejection given above).

Hogan in view of Furuta et al. in view of Kurashina et al. does not but Yeo teaches the data reproducing method further comprising: determining whether or not data accessed a plurality of times and obtained is the same in accordance with the reproduction state. Paragraphs 0041 and 0042 teach how an error is identified and data is re-read in order to validate the values.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the copy restriction apparatus and method as taught by Yeo into the system of Hogan in view of Furuta et al. The recording apparatus and method given would serve to provide cost-effective copy preventive methods for optical disks capable of preventing the copying of illegal data (paragraph 0006 of Yeo).

8. Claims 6, 28, 29, and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable Hogan in view of Furuta et al. as applied to claims 1, 22 and 30 above, and further in view of Yeo.

Hogan in view of Furuta et al. teaches the medium according to the limitations of claims 1, 22, and 30 (see rejections given above). However, Hogan in view of Furuta et al. does not teach the further limitations of claims 6, 28, 29, and 34.

Regarding claim 6, Hogan in view of Furuta et al. does not but Yeo teaches the data recording method, wherein an error of the data causes the value of the data to vary whenever it is read. Paragraphs 0041 and 0042 teach how an error is identified by the

difference in signal and the data is re-read. The mistaken readings of the signals are similar to the variance of the value of data.

Regarding claim 28, Hogan in view of Furuta et al. does not but Yeo teaches the data reproducing method further comprising: prohibiting data from being reproduced when the detected result at the detecting step (result of the controlling means, which is the CPU) represents that the recording medium is a copied recording medium (paragraph 0066).

Regarding claim 29, Hogan in view of Furuta et al. does not but Yeo teaches the data reproducing method further comprising: generating an alarm ("error message") that represents that data is reproduced from a copied recording medium when the controlling means has determined that the recording medium is a copied recording medium (when the signals do not correspond to each other repeatedly). For further explanation, see paragraph 0042.

Regarding claim 34, Hogan in view of Furuta et al. does not but Yeo teaches the data reproducing apparatus wherein the controlling means is configured to determine whether or not data accessed a plurality of times and obtained is the same in accordance with the reproduction state. Paragraphs 0041 and 0042 teach how an error is identified and data is re-read in order to validate the values.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the copy restriction apparatus and method as taught by Yeo into the system of Hogan in view of Furuta et al. The motivation would be that the recording apparatus and method given would serve to provide cost-effective copy preventive

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methods for optical disks capable of preventing the copying of illegal data (paragraph 0006 of Yeo).

9. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hogan in view of Furuta et al. in view of Takagi et al. as applied to claim 35 above, and further in view of Yeo.

Hogan in view of Furuta et al. in view of Takagi et al. teaches the data reproducing apparatus according to the limitations of claim 35 (see rejection given above).

Regarding claim 36, Hogan in view of Furuta et al. in view of Takagi et al. does not but Yeo teaches the data reproducing apparatus wherein the controlling means (CPU) prohibits data from being reproduced when the controlling means has determined that the recording medium is a copied recording medium (paragraph 0066).

Regarding claim 37, Hogan in view of Furuta et al. in view of Takagi et al. does not but Yeo teaches the data reproducing apparatus as set forth in claim 36, further comprising: alarm generating means for generating an alarm ("error message"), wherein the controlling means controls the alarm generating means to generate an alarm that represents that data is reproduced from a copied recording medium when the controlling means has determined that the recording medium is a copied recording medium (when the signals do not correspond to each other repeatedly). For further explanation, see paragraph 0042.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the copy restriction apparatus and method as taught by Yeo into the

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system of Hogan in view of Furuta et al. The motivation would be that recording apparatus and method given would serve to provide cost-effective copy preventive methods for optical disks capable of preventing the copying of illegal data (paragraph 0006 of Yeo).

Response to Arguments

10. Applicant's arguments with respect to the claimed invention have been considered but are moot in view of the new ground(s) of rejection.

Applicant contends that the combination of Hogan in view of Furuta in view of Kurashina does not teach adding connection bits between channel bits to increase the DSV in a data area of a disk. The examiner disagrees. Hogan describes a similar method of encoding data to determine the reproduction state of the data being reproduced, including the concept of adding connection bits to previously existing data to change the DSV of the data area. In addition, Hogan describes separate data and synchronization blocks, of which only the data bytes are affected. Furuta was relied upon to show that it is common in the art to utilize this concept on disks. Kurashina was previously relied upon to show that it is common in the art to utilize separate areas for the two types of data.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Parul Gupta whose telephone number is 571-272-5260. The examiner can normally be reached on Monday through Thursday, from 8:30 AM to 7 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Korzuch can be reached on 571-272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PHG
12/26/06


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